NOTES ON, AND A KEY TO, THE OFTEN-CONFUSED BRITISH SPECIES OF *AMPEDUS* GERM. (COL.: ELATERIDAE), WITH CORRECTIONS OF SOME ERRONEOUS RECORDS

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THE MAIN purpose of these notes is to rectify some of the rather numerous errors in identification of the above click-beetles (up to fairly recently always under the generic name of *Elater*) in our literature; either where I have been able to see the specimen(s) in question, or where there is overwhelming reason to suspect an error.

The group of species concerned is that in which the elytra are wholly bright red, and which so nearly resemble one another that mistakes are very liable to occur. (The very rare species known here up to lately as *A. praeustus,* from Ireland only, is not included.) Fortunately, our excellent modern guide to the distribution of the Elateridae in Britain, the "Provisional Atlas" by Howard Mendel (1988), is virtually untouched by these errors, of which Mr Mendel was already aware in contacts with the writer prior to publication. Most of the few additional records given below are incorporated there in the county distribution; here I merely add such details as are known to me, together with any points of interest which present themselves, and a rough-and-ready key to the species considered.

First, however, a word of explanation is due. Before these notes appear in print, an important paper by Mr Mendel introducing two name-changes that have been found necessary — cases of mistaken identity — will almost certainly have been published (see the *Coleopterist's Newsletter,* Nov. 1989, p.10). Only one of them is of concern here: the familiar *A. pomonae* of British authors becomes *A. quercicola* (du Buysson). However, since I shall have occasion to refer rather frequently to records published under the established name *pomonae,* that name is retained here to avoid complications and possible confusion.

Ampedus cardinalis (Schiödte) (= *Elater coccinatus* Rye, *E. praeustus* sensu Joy *partim*). — In 1983, fragments referable to this species, together with young larvae which were probably all or mostly *A. balteatus,* were dug out of an old standing rotten oak at Scadbury Park, Chislehurst (near Bromley) by my friend Mr S.A. Williams. They fortunately included part of a pronotum, which securely identified the species; but it is not known whether it still survives there, no larva being reared to maturity. This is the first record of the species in West Kent.

In or about 1981 *A. cardinalis* was discovered by Mr P.M. Hammond and by Mr Mendel about the same time, in some of the old oaks in Richmond Park, Surrey, where it has since been found somewhat freely and very widely — another new county record. The want of earlier records for this locality, so similar to Windsor Great Park where the species also occurs, and well worked last century, is noteworthy; it confirms a suspicion

I have long entertained, that even primary-forest relicts may wax and wane very markedly over much extended periods of time.

These two new localities just south and west of London, with the much older records for Kensington Gardens (Rye), Highgate (in coll. Power), and Waltham Abbey (Pool), make quite a cluster centred on the metropolis.

On 15th May, 1950, I found two examples of this species in a dead and decayed oak trunk in Moccas Park, Hereford — incorrectly given in Hallett (1952: 291) as *praeustus* F., following Beare (1930: 31). Since then it has probably occurred to other collectors, but there was no previous record; it appears to be much rarer in the Park than *A. rufipennis*. The Sussex record (Joy, 1932) is for Parham Park in the western vice-county: E.C. Bedwell, 1939, and as lately as 1983 by Mr Mendel.

A. cinnabarinus (Esch.). — Recorded (as *Elater lythropterus* Germ.) from near Ashford, East Kent (Chitty) in Fowler & Donisthorpe (1913). I have seen the single specimen in the A.J. Chitty collection on which this record is based, from Eastwell Park near the above town, 5.vi.1906. It is, however, an evident *A. rufipennis,* thus tying in with other finds of that species in the same district of East Kent — see under *A. pomonae*. An interesting, because somewhat isolated, new record of *cinnabarinus* is for North Devon; in 1957 I detected an example in Mr B.L.J. Byerley's collection which he informed me he had taken at Bratton Fleming, near Ilfracombe, 1.ix.54; and that there was plenty of dead wood about at that time and place, chiefly oak. Notable new county records published in recent years include West Sussex and Monmouthshire. An additional one for Gloucestershire is a specimen from Lower Lydbrook, vi.61 (Frank Clark, *per* A.W. Gould).

Fowler & Donisthorpe, under *E. lythropterus,* have a record "Suffolk (Morley)". Mr D.R. Nash informed me some years ago that there are no Suffolk *cinnabarinus* in Claude Morley's collection, and Mr Mendel has good reason to believe that the record should refer to Tuddenham Fen, W. Suffolk — a matter he is dealing with in a forthcoming paper on the genus in that county. Considering, however, that the species is not certainly known from East Anglia, but that there is a cluster of records of *A. pomonae* from the fen districts (Cambs and Hunts: Mendel, pp. 18, 21), we think it far likelier that the latter is really the Suffolk species.

I have seen specimens almost exactly intermediate between *cinnabarinus* and *pomonae* from the New Forest (where both are known from early times) which on external examination it is hardly possible to refer definitely to either; if such specimens are *cinnabarinus,* they are undersized, with the pronotum less punctured than normally and the pubescence varying or indeterminate in colour; but they appear to grade into the typical state. It may be significant that both species are well established where such individuals occur. Occasional hybridization thus seems possible; the aedeagi are sufficiently alike to be useless for discrimination. Jones (1931)

mentions that the two species were much confused in the W.W. Fowler collection at Nottingham. It need hardly be added that the beetles are perfectly distinct when normally developed; further, the larvae differ more widely and constantly than the adults (van Emden, 1956: 187).

A. pomonae (auct. nec Steph.: Mendel. 1990) — The *Ampedus* known here up to now by this name has, like the last, been recorded in error from East Kent, the actual species being, again, *rufipennis*: Little Chart, near Ashford, in elm and beech (Hitchings, 1956). A year or two after the late Dr A.M. Massee, who had named this as *pomonae,* evidently had second thoughts about its identity and submitted a specimen to me, when the mistake became apparent. Only a year earlier the late K.C. Side (Parmenter, 1955) had exhibited as *pomonae* a specimen from a beech log at Godmersham (22.iv.54). This I have not seen, but in view of the other two finds — all three within the Ashford district — it is scarcely possible to doubt that all alike relate to one and the same species, and that *pomonae* most probably has not occurred in East Kent.

The present species was recorded from Moccas Park by Tomlin (1950: 43), but once more the species turned out to be *A. rufipennis* — I have examined the specimen, taken in 1933 — and there is so far no genuine record of *pomonae* for the West Midlands. Those for West Wales and South Scotland cannot be accepted until confirmed. On several occasions during the last two decades Mr D.R. Nash has found *A. pomonae,* mostly in rotten birch, in the Hamptworth area of South Wiltshire (a county from which it was previously unknown), and kindly sent me an example.

In certain East Midland localities there occurs what seems to be a strikingly large race of *A. pomonae,* which has given rise to much confusion and has been more than once mistaken for *A. sanguineus* (q.v.); at Sherwood it appears to coexist with the typical race of normal size. Elsewhere I know of it from Northants, where the late B.A. Cooper discovered it at Collyweston in beech trunks or logs in the spring of 1947, in small numbers unaccompanied by typical specimens. It will be found in his collection in Nottingham Museum (Wollaton Hall), and certainly merits investigation.

Van Emden (1956: 187) remarks that "the imagines of *pomonae* and *cinnabarinus* . . . are usually found together". They do indeed have the same habitat, but in Britain the statement is true only of the New Forest — the sole locality where both occur, as far as we yet know.

A. rufipennis (Steph.). — Like the last two species, this has often been involved in error; but with the difference, that whilst it has frequently passed as other species, any records under the name *rufipennis* are almost sure to be correct. Not until 1925 was it recognised here as a good species, and even up to now the most important character separating it from its allies has not been noticed in British works. Ancient specimens without locality can be found in the older museum collections. It appears doubtful

whether *A. rufipennis* has ever occurred in the New Forest — similarly with *A. cardinalis*. The records are still few and scattered (Mendel, p. 23), with only five county divisions represented; to which one more can now be added. Most of our specimens are from Windsor Forest and Moccas Park, in both of which it has occurred quite freely at times (as it seems may be true also of the East Kent centre). At Windsor its preference for beech is very marked; at Moccas I have found adults in a fallen beech, and larvae in an elm log.

The new record — for which I am indebted to Mr P.F. Whitehead, who was so good as to send me an example — is for Worcestershire, where he has met with it in at least three sites in the Pershore district from 1972 onwards, in old pollard ash trees and an elm log.

Small individuals of *rufipennis* can closely resemble *pomonae* in general shape, sculpture and form of thorax, and all-black pubescence; but if the antennal character (see key) be attended to, no doubt should arise except in very abnormal cases.

A. sanguineus (L.). — Our rarest species (if it was ever really indigenous) and probably long extinct; but, as suggested below, it may recur. The sole apparently authentic British specimens at present known, with at least some indication of locality, belong to the first half of last century: one in the BMNH labelled "Salisbury"; another in the Manchester Museum collection marked "New Forest" and "J.R.H." (J. Ray Hardy), *teste* C. Johnson; and a third in the Dale collection at Oxford. I have examined the first and last of these. The Dale specimen is one of three individually unlabelled but indicated collectively in J.C. Dale's catalogue as from "rotten Oak stumps, New Forest, Hants." The other two, however, are only *cinnabarinus*. Dale gives three dates, of which "Apr. 8, 1830" seems to apply to the *sanguineus* specimen. It is not clear whether Fowler's "New Forest" for this species was copied from Stephens, whose "*sanguineus*" was *cinnabarinus*; in fact the wording rather implies that it was not. My specimen was given me by the late H. Dinnage, who had it from Dr Joy without data; presumably from some old collection (it had been pinned), but it seems strange that Joy had not indicated how he came by it.

Records of this species crop up now and then, all apparently false and based on misdeterminations — as Jones (1931) concluded for "*sanguineus*" specimens from Sherwood Forest in the Nottingham Museum collection. Another is entered in the late E.C. Bedwell's diaries (21.vi - 4.vii.1912) as taken by himself at Sherwood and vouched for as *sanguineus* by Dr D. Sharp, but queried by Newbery as *pomonae*. I have little doubt that such records have their source in the large race of *A. pomonae* already adverted to under that species. The latest record of *sanguineus* is of one from Silwood Park (near Windsor) in 1967 (Cooper, 1974). The locality, with the fact that the captor gave no hint of how he had arrived at this unlikely determination, convinced me that the species must

be *rufipennis* — a belief proved correct when, much later, his brother kindly sent me the beetle for checking.

A. sanguineus poses something of an enigma in zoogeography: it ranges widely throughout Europe and is regarded as the most generally common of this group in the countries nearest to us. No convincing reason for its virtual absence from Britain suggests itself. Its rediscovery here cannot be ruled out, especially in view of our extensive afforestation with conifers — these being its normal hosts.

There follows a short key to more or less typical specimens of the species noticed here. It would be impractical to try to provide for the many possible deviations, and largely self-defeating to enter into great detail where there are so few really fixed points. Most of the characters are necessarily comparative. Though the bright red colour of the elytra is usually well retained, it tends to become duller and browner in very old specimens. Pubescence-colour is often helpful, but exceptions are met with in all the species, *pomonae* being especially prone to variation in this respect. In general, small specimens have the pronotum less thickly punctured than larger ones. Antennal characters need to be viewed perpendicularly to the flattened surfaces of the segments.

1/2 More parallel-sided; pronotum longer in proportion, less strongly contracted in front, dull, entirely thickly to densely punctate, even near base scarcely or very little less so; elytra as a rule distinctly less bright in colour, rosy-pinkish red, at least when fresh. (Pubescence dark on fore-body, often pale on elytra. In Britain always in red-rotten oak) ..... *cardinalis.*

2/1 More evidently contracted in front and behind; pronutum shorter in proportion except in *sanguineus,* more shining, especially in the basal third where it is obviously more diffusely punctate than at sides or in front; elytra more distinctly blood-red to scarlet.

3/4 Antennal segment 3 broad, triangular, similar in shape to (though smaller than) 4, quite unlike 2; male with antennae longer and more serrate than in female, in both sexes distinctly more robust. (Pubescence dark; most like rather large *pomonae.* Mainly in beech, but also elm, ash, and birch) ..... *rufipennis*

4/3 Antennal segment 3 sublinear like 2, and so quite unlike 4; antennae similar in the sexes and more slender, feebly and bluntly serrate (but see under *cinnabarinus*).

5/6 Central channel of pronotum reaching shallowly almost to front margin (best seen with light coming from side); pronotum more elongate (about as *cardinalis*), the sides less curved. (Pubescence dark; on average the largest species. Abroad mainly in pine or fir) ..... *sanguineus.*

6/5 Pronotum with central channel in basal half or third only, somewhat shorter with sides more curved.

7/8 Basal third of pronotum not so diffusely or finely punctate; pubescence pale. (Usually larger than the next and rather broader; certain males have the antennae distinctly more serrate than usual. Mainly in oak, beech, and birch)..... *cinnabarinus.*

8/7 Basal third of pronotum quite or very diffusely and finely punctate; pubescence normally dark, but not rarely pale on fore parts, where it is often noticeably long and bristly at sides. (Typically the smallest of the group, apart from the large East Midlands race, and rather narrower. Host trees the same)..... *pomonae.*

(*A. nigrinus* (Herbst).) — In my 1966 paper I touched incidentally on the implausible record of this species (which in the west just reaches as far south as Gloucestershire) from Tooting Common, S.W. London, by S. Stevens (Fowler, p.92). Up to a few decades ago some very old oaks survived in this locality, a fact strongly suggesting that the *Ampedus* taken there by Stevens is far more likely to have been *A. nigerrimus* Lac. — only definitely known here from Windsor Forest. (The rare chafer *Gnorimus variabilis* L., now only found at Windsor, used to occur in the Tooting oaks — a further link between the two localities.) The discovery of Stevens' material, now unlikely, would alone settle the question.

Fowler's record "Cobham" (*l.c.*) is also problematic. The Cobham in Surrey (likelier than that in Kent, to judge by Fowler's customary usage) is on the edge of pine country and so not an impossible area for *A. nigrinus* to have inhabited in the past. There is no mistaking its attachment to pine in its Highland headquarters (query: was Fowler's datum "occasionally in oaks" based on British experience, notably that of Stevens?), so it is remarkable that for the Continent, Lohse (1979: 109) does not include conifers among its host trees (". . . alder stumps, more seldom oaks and other deciduous trees"). This *could*, conceivably, put a different complexion on the old Tooting, Cobham, and Windsor records of *nigrinus*.)

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Homoneura hospes Allen (Dipt.: Lauxaniidae): a postscript.

In connection with my recent paper (*antea:* **101**: 199-201) describing this species, Mr Steven J. Falk has very justly pointed out that, because of its possession of a pair of normally well-developed *presutural* dorsocentral bristles, the new species does not (or only doubtfully) run out to the genus *Homoneura* using the generic key to the British species of the family by Collin (1948) referred to in my paper. This is indeed the case and ought to have been noted in the latter, but was somehow overlooked by all three of us who originally examined the fly. In actual fact the above fault is inherent in the key as it stands, even without reference to *H. hospes*; for if one uses it to key out *H. limnea* Becker, which like *hospes* possesses a presutural DC bristle (see couplet 8, p.235), the same difficulty, or uncertainty, is encountered. The problem hinges on the character given under couplet 10 (p.226) intended to cover both *Sapromyza* and *Homoneura,* but which in fact applies clearly to the former of them alone.

I shall not attempt to juggle with the key in order to remove the fault; preferring, if it is to be done, to leave the task to someone more qualified and with a better knowledge of our Lauxaniidae. Meanwhile, any known British *Homoneura* can readily be recognised as such by the three characters given on p.227, couplet 12, in combination (but see under *Homoneura* on p.235). Indeed it is more than likely that the very clear and definite character relating to the row of small black costal spines (p.227) will itself suffice for generic diagnosis. Should this prove to be so, correction of the key will be much simplified.

I am grateful to Mr Falk for bringing the above discrepancy to my notice.— A.A. ALLEN, 49 Montcalm Road, Charlton, London SE7 8QG.

Hazel as an important larval foodplant of the Barred Umber, _Plagodis pulveraria_ L. (Lep.: Geometridae)

Further to my note on the above (*Ent. Rec.* **100**: 135-136) comparing the frequency of *P. pulveraria* on birch, hazel and hawthorn, Gerry Haggett (pers. comm.) informs me that in his experience also *P. pulveraria* is most numerous and almost entirely found on hazel. In Haggett (1951) he reports